

### **REMARKS**

Entry of this Amendment and reconsideration are respectfully requested in view of the amendments made to the claims and for the remarks made herein.

Claims 16-29 are pending and stand rejected.

Claims 1-14 had been withdrawn from consideration based on the papers submitted on February 12, 2009 in response to the Restriction Requirement issued on November 12, 2008.

Claims 16 and 27 are independent claims.

Claim 15 had been cancelled in a prior communication.

Claims 16, 17, 18, 19, 20, 21, 22, 23 and 27 have been amended.

Claims 16-29 stand rejected under 35 USC 112, second paragraph as being indefinite. Claims 16-25 and 27-29 stand rejected under 35 USC 103(a) as being unpatentable over Inoue (WO2003/027999 or USP no. 7,071,635) in view of Akimoto (USPPA 2004/0004591) and Jongman (WO2001/099195). Claim 26 stands rejected under 35 USC 103(a) as being unpatentable over Inoue, Akimoto and Jongman and further in view of Cok (USPPA 2002/0175885).

Applicant thanks the Examiner for providing a copy of the newly cited Jongman reference.

Applicant would further comment that the Office Action has referred to the Akimoto reference for teaching that the invention claimed appears to be related to driving the display from two ends. The Office Action refers to Figure 3 of the instant application to support this conclusion. See Office Action, page 9, first paragraph ("whereas, the instant application's algorithms are primarily directed to an analysis of a power line row conductor being driven at both ends [e.g., Fig. 3, VL, VR] (see Page 10, lines 9-11)").

However, applicant would note that the aforementioned reference in the

specification states "[t]he analysis below assumes that the power line is driven from both ends. However, it will be appreciated that the analysis can however be performed for a row conductor driven at one end." That is, the reference to VR on page 11 for example, may easily be set to a zero value (i.e., only VL driving the row), without altering the scope of the invention.

Hence, applicant believes, that the assumption that the invention is related to a display be driven at both ends is incorrect as the inventors, while providing a figure showing the ability to drive a row from both ends, have considered the case of driving the row from one end.

With regard to the rejection of the claims under 35 USC 112, second paragraph, applicant thanks the Examiner for his observation and has endeavored to respond to the noted errors in form by either removing the objected-to language or amending the claims to recite the subject matter in better form.

However, with regard to the reason for rejecting claims 17, 23 and 28 in paragraphs 6, 10 and 15, respectively, applicant respectfully disagrees with and explicitly traverses the rejection of the claims.

With regard to the form of the matrix including the term "..." and not showing each element, applicant submits that such form is standardized representation of matrices that need show only the essential elements of the matrix. In this case, the matrix requires only diagonal elements and these values are adequately represented. In addition, the term "..." is used to express that the elements shown before and after the term "..." are repeated therebetween and, thus, the values in between the expressed values need not be explicitly shown. Use the term "..." is well-known and would be understood by those skilled in the art to represent that the term "..." represents repeating values as the values before and after the term "..." are the same.

Furthermore, because the matrix form is applicable to systems with different number of rows and columns, an actual number of row and columns

need not be shown. That is, the number of rows and columns may be variable dependent upon the size of the array, but such variability is not indefinite, as one skilled in the art would be able to expand, or contract, the matrix representation without undue experimentation. Thus, it may be possible to create an array of pixel elements that are 1024x1024, 2048x2048, 600x480, etc. and a representation matrix for each different array configuration is not required for one skilled in the art to understand the principles of the invention claimed.

In addition, claim 17, for example, further recites that the number of rows and columns of matrix  $M$  is equal to the number of pixels in the row.

Hence, the claim explicitly teaches one skilled in the art how to properly size the matrix  $M$  based on the number pixels in a row.

With regard to the terms " $n$ " and " $j$ ", applicant continues to maintain that these are standardized mathematical terms to express variables within the context of an array of size " $n$ " and, thus, the use of these expressions within the claims is well-known and recognized by those skilled in the art. Although the terms " $n$ " and " $j$ " represent variable values, these values are not indefinite as the term " $n$ " relates to the number of pixel elements in a row and the term " $j$ " represents an index of a pixel within a row, wherein  $j=0$  represents the first pixel element.

One skilled in the art would understand and recognize the use of the term " $n$ " and " $j$ " in the formulas presented as such representation is well-known mathematical method of presenting values for individual elements within a set of elements. One of ordinary mathematical capabilities would understand and recognize such mathematical representation without any undue experimentation.

Thus, applicant submits that contrary to the assertion made by the Office Action regarding the use of the terms  $n$ ,  $j$  and ... as being indefinite, such use of terminology is in fact well-known in the art and that one skilled in the art would understand the use of these terms in describing the subject matter recited in the claims.

As applicant has used standardized mathematical terminology in

describing the invention claimed, detailed recitation of the characteristics of the elements, such as whether the values of  $n$  and  $j$  are an integer, a whole number or a real number, is believed not necessary for one skilled in the art to practice the invention claimed. Applicant has not defined or presented any terminology that is not in a standardized format that would be unknown to those skilled in the arts and, hence, believes that the invention claimed is sufficiently disclosed that one skilled in the art is able to practice the invention without undue experimentation.

Accordingly, applicant believes that the aforementioned claims are in a form that is definite as one skilled in the art would understand and recognize the content, and size, of the matrix  $M$ .

For the amendments made to the claims and for the remarks made herein, applicant submits that the reason for the rejection of the claims has been overcome.

With regard to the rejection of claims 16-25 and 27-29 as being unpatentable over the combination of Inoue, Akimoto and Jongman, applicant respectfully disagrees with and explicitly traverses the rejection of the claims. However, in order to advance the prosecution of this matter, applicant has amended the independent claims to further recite that the element "said value being determined based on characteristics of a driver circuitry associated with a pixel element." No new matter has been added. Support for the amendment may be found at least on page 6, lines 5-8 which state, in part, "[t]aking account of the dependency of the pixel brightness characteristics on the voltage on the row conductor at the pixel then includes taking account of any change in drain-source voltage and the gate-source voltage of the drive transistor resulting from the row conductor voltage."). Support may also be found in Claims 18 and 22. Although claims 18 and 22 have been rejected based on the teachings of Inoue, it will be shown that Inoue fails to disclose considering the driving circuit as is

recited in the independent claims.

Inoue discloses a flat panel display which comprises pixels arranged along drive lines, a voltage drop calculator for calculating a voltage drop occurring in accordance with the position of each pixel, and a video signal converter and a lookup table for correcting the input signal to be supplied to the pixel in accordance with the magnitude of the calculated voltage drop.

In rejecting the claims, the Office Action refers to Inoue for teaching a compensation circuitry for modifying target pixel drive currents by taking account of a voltage on conductors associated with each row at each pixel and on a dependency of a brightness characteristic associated with a corresponding pixel and means for applying an algorithm to the target pixel drive currents (referring to col. 4, line 60-col. 7, line 9) and means for scaling the target drive currents using a value representing the dependency of the pixel brightness characteristics on the voltage (referring to entire document, including col. 7, lines 10-49). The Office Action further acknowledges that Inoue discloses the adjustment being made at one end of a row conductor and refers to Akimoto for disclosing a power line row conductor driven at both ends. In this case, the Office has assumed, based on the exemplary circuit shown in Figure 3, that the invention is related to driving the pixels within a row from both ends.

The Office Action further refers to Jongman for teaching that electroluminescent pixel material have different brightness characteristics and it would be obvious to use "Jongman's EL RGB materials to form Inoue's pixels so as to provide a display having a long life."

Inoue teaches a system wherein a voltage drop along a row conductor is compensated for so as to cause the brightness at a pixel to be a desired or expected value based on the initial input value.

With reference to col. 7, lines 10-49, Inoue teaches that "voltage drop values obtained at the respective points ... are fed to a video signal converter... By reference to the lookup table, the video signal convertor converts the voltage drop value ... to a signal. Defined in the lookup table are the source-drain

voltage-current relationship and the relationship between the base voltage and the source-drain current ... [T]he video signal converter converts the voltage drop value at each point to a current reduction of the second transistor ... and further to an increase in base voltage required to compensate for the current reduction ... In the case of the organic EL display device .... The input signal to each pixel is corrected in accordance with the voltage drop occurring in the drive line ... The pixel can therefore be caused to luminesce [sic] with luminance corresponding to the input signal despite the voltage drop..."

Thus, Inoue teaches that the adjustment to the voltage compensates for a voltage drop along the row conductor so as to achieve a brightness level at each pixel that corresponds to the input signal.

Nowhere does Inoue disclose a value determined based on characteristics of the driving circuit, as is recited in the claims. Rather, Inoue teaches a system wherein a voltage adjustment is obtained based on the position of the pixel along a row of pixel element.

In this case, Inoue fails to teach a second level of adjustment based on the characteristics of the associated drive circuit, as is recited in the claims.

In rejecting claim 22, the Office Action refers to col. 4, lines 60-col. 7, line 49 for "taking the 'pixel programming phase' to occur during 'display'  $\alpha = 1$  and the value ... = 0)."

However, Inoue fails to provide any teaching regarding a difference in a current during a programming phase and a display phase and the Office Action has merely imposed a value upon the term  $\alpha$  so as to achieve a desired adjustment value of 0. As noted on page 6, lines 9-15 of the instant application teaches that conventional methods of driving pixels may consist of a programming phase and a driving phase. (:[i]n particular, some pixel drive schemes involve supplying more or less current in the programming phase than during driving of the pixel.).

Hence, the setting of the term  $\alpha = 1$  is merely one that can be achieved. However, the setting of  $\alpha = 1$  only determines a difference in voltage adjustment

between the programming and display phases and is not indicative that the value (i.e., adjustment voltage in either the programming or display phase) is based on characteristics of the driver circuit, as is recited in the claims.

Akimoto discloses a system for providing uniformity of display luminance over large screens by disposing at least one of the input terminals for the power supply lines between input terminals. That is, Akimoto teaches that the input lines are distributed along the rows of pixel elements to provide substantially uniform voltage at each pixel. Thus, Akimoto provides a system wherein a consistent voltage level may be found along the length of the row.

Akimoto fails to disclose or suggest any compensation based on characteristics of the driver circuitry, as is recited in the claims.

Jongman teaches a system that operates one light emitting device at a lower power than a second light emitting device, when the first device has shorter operational life than the second light emitting device so as to extend the operational life of the second device to provide a substantially same operational life for both devices (see page 5, lines 12-20, for example). Jongman further teaches that the potential applied to each of three color elements (RGB) of a pixel may be Pulse Width Modulated to provide appropriate On/Off times of the applications a voltage to each element (see page 6, lines 4-17 and Figure 12).

Thus, Jongman discloses that the voltages applied to an element of a pixel (i.e., the R, G, or B elements) may be individually assigned to achieve a substantially equal operational life of each element. The voltage (or the duration of the voltage) applied to each element is determined as a function of Luminance v. Voltage characteristic of each element.

Jongman fails to disclose or suggest any compensation based on characteristics of the driver circuitry, as is recited in the claims.

A claimed invention is prima facie obvious when three basic criteria are

met. First, there must be some suggestion or motivation, either in the reference themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the teachings therein. Second, there must be a reasonable expectation of success. And, third, the prior art reference or combined references must teach or suggest all the claim limitations. The Court in *KSR v. Teleflex* (citation omitted) has held that the teaching, suggestion and motivation test (TSM) is merely to be used as a helpful hint in determining obviousness and a bright light application of such a test is adverse to those factors for determining obviousness enumerated in *Graham v. John Deere* (i.e., the scope and content of the prior art, the level of ordinary skill in the art, the differences between the claimed invention and the prior art and objective indicia of non-obviousness) (citation omitted).

In this case, the combination of the cited references fails to disclose a material element recited in the independent claims, as neither of the cited references provides any teaching regarding a scaling based on characteristics of the driver circuitry, as is recited in the claims. Thus, the difference between the prior art and the subject matter claimed is significant and each of the aforementioned claims is not rendered obvious by the combination of the cited references.

With regard to the rejection of the remaining claims, each of these claims depends from one of the independent claims and, hence, are also not rendered obvious by the cited references by virtue of their dependency upon an allowable base claims.

With regard to the reject of claim 26, applicant submits that this claim depends from independent claim 16, which has been shown not to be obvious over the cited references. Cok fails to provide any teaching to correct the deficiency found to exist in the combination of Inoue and Akimoto.



Accordingly, claim 26 is also not rendered obvious by the combination of the cited references.

For the amendments made to the claims, as presented herein, and for the arguments provided in applicant's response to the currently outstanding Office Action, applicant submits that all claims are in an allowable form and that a issuance of a Notice of Allowance is respectfully requested.

Applicant denies any statement, position or averment stated in the Office Action that is not specifically addressed by the foregoing. Any rejection and/or points of argument not addressed are moot in view of the presented arguments and no arguments are waived and none of the statements and/or assertions made in the Office Action is conceded.

Applicant makes no statement regarding the patentability of the subject matter recited in the claims prior to this Amendment and has amended the claims solely to facilitate expeditious prosecution of this patent application. Applicant respectfully reserves the right to pursue claims, including the subject matter encompassed by the originally filed claims, as presented prior to this Amendment, and any additional claims in one or more continuing applications during the pendency of the instant application.

In order to advance the prosecution of the matter, applicant respectfully requests that any errors in form that do not alter the substantive nature of the arguments presented herein be transmitted telephonically to the applicant's representative so that such errors may be quickly resolved or pursuant to MPEP 714.03 be entered into the record to avoid continued delay of the prosecution of this matter any further.

MPEP 714.03 affords the Examiner the discretion, pursuant to 37 CFR 1.135 (c), to enter into the record a bona fide attempt to advance the application

that includes minor errors in form.

“[a]n Examiner may treat an amendment not fully responsive to a non-final Office Action by: (A) accepting the amendment as an adequate reply to the non-final Office action to avoid abandonment ... (B) notifying the applicant that the reply must be completed... (C) setting a new time period for applicant to complete the reply ...

The treatment to be given to the amendment depends upon:

(A) whether the amendment is bona fide; (B) whether there is sufficient time for applicant's reply ... (C) the nature of the deficiency.

Where an amendment substantially responds to the rejections, objections or requirements in a non-final Office action (and is bona fide attempt to advance the application to final action) but contains a minor deficiency (e.g., fails to treat every rejection, objection or requirement), the examiner may simply act on the amendment and issue a new (non-final or final) Office action. The new Office action may simply reiterate the rejection, objection or requirement not addressed by the amendment (or otherwise indicate that such rejection, objection or requirement is no longer applicable).

This course of action would not be appropriate in instances in which an amendment contains a serious deficiency (e.g., the amendment is unsigned or does not appear to have been filed in reply to the non-final Office action)...”

Although the present Office Action has been made Final, Applicant submits it is within the discretion of the Examiner to accept any minor errors in form that the Examiner believes to render this response non-compliant. However,

if the Examiner believes that such minor errors in form cannot be entered into the record or that the disposition of any issues arising from this response may be best resolved by a telephone call, then the Examiner is invited to contact applicant's representative at the telephone number listed below to resolve such minor errors or issues.

No fees are believed necessary for the timely filing of this paper.

Respectfully submitted,  
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